



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,925	07/16/2003	H. Mark Hanna	P05703US01	8869
22885	7590	05/12/2005	EXAMINER	
MCKEE, VOORHEES & SEASE, P.L.C. 801 GRAND AVENUE SUITE 3200 DES MOINES, IA 50309-2721			GORMAN, DARREN W	
		ART UNIT	PAPER NUMBER	
		3752		

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/620,925	HANNA ET AL.
	Examiner	Art Unit
	Darren W Gorman	3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 11 April 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-30 and 43-80 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 54-60,65-71,77 and 79 is/are allowed.

6) Claim(s) 1-5,7-11,15-30,43,46-53,61-64,72,73,75,76 and 80 is/are rejected.

7) Claim(s) 6,12-14,44,45,74 and 78 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 11 April 2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Drawings

1. The replacement drawing sheets were received on April 11, 2005. These drawings are acceptable.

Specification

2. The disclosure remains objected to because of the following informalities, which were previously set forth in the Office Action mailed January 6, 2005, but not properly overcome in the response filed April 11, 2005:

- On page 8, line 3, [inlet 24], both occurrences, should be changed to --inlet 18--.
- On page 9, line 28, [inlet 24] should be changed to --inlet 18--.
- On page 10, line 28, [impeller 22] should be changed to --impeller 30--.

Appropriate correction is required.

Claim Objections

3. Claim 78 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 7-11, 16, 27, 50-53, 61-64, 72, 76 and 80 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 7, “the impeller” lacks antecedent basis. NOTE: Claim 7, as originally filed (dependent on claim 4) was definite and clear with regard to providing proper antecedent basis for “the impeller”. As amended to be dependent directly on claim 1, “the impeller” does not have proper antecedent basis.

Regarding claim 16, “the impeller” lacks antecedent basis. NOTE: Although Applicant asserted in the “REMARKS” section on page 18 of the response filed April 11, 2005 that claim 16 has been amended accordingly to overcome the above stated rejection, no such amendment to claim 16 appears in the response filed.

Regarding claim 27, the recitation “to derive speed of rotation of the member” is unclear. Claim 1 does not positively recite that the member itself rotates. Claim 1 only recites that the member comprises “an external rotatable fluid pathway” (i.e. the pathway rotates, but not necessarily the entire member).

Regarding claim 50, the recitations regarding the “distribution void” are presented in an unclear manner. Specifically, on line 13, “the distribution void” is recited without antecedent basis in the claim. Then on line 15, “a distribution void” is recited.

Regarding claim 53, the recitation “said space” lacks antecedent basis. Is “said space” the same element as the “distribution void” recited in claim 50?

Regarding claim 61, the recitation “said space” lacks antecedent basis. Is “said space” the same element as the “distribution void” recited in claim 54?

Regarding claim 62, the recitations regarding the “distribution void” are presented in an unclear manner. Specifically, on line 13, “the distribution void” is recited without antecedent basis in the claim. Then on line 17, “a distribution void” is recited.

Further regarding claim 62, on lines 14-16, the placement of the recitation “comprising a generally constant cross sectional area along the supply groove, distribution groove, inlet, and the sum of the outlets” renders the claim unclear. The placement of the above recitation implies that the “member” comprises this complete subcombination of elements, when in fact, as understood by the Examiner, only the “supply groove” and “distribution groove” are part of, or defined by the “member” itself. The remaining elements (inlet, and plurality of outlets) are all subcombinations of the distribution manifold as a whole.

Regarding claim 64, the recitation “said space” lacks antecedent basis. Is “said space” the same element as the “distribution void” recited in claim 62?

Regarding claim 72, the recitation “said space” lacks antecedent basis. Is “said space” the same element as the “distribution void” recited in claim 69?

Regarding claim 76, the recitation “said space” lacks antecedent basis. Is “said space” the same element as the “distribution void” recited in claim 73?

Regarding claim 80, the recitation “said space” lacks antecedent basis. Is “said space” the same element as the “distribution void” recited in claim 77?

The above claims will be examined as best understood by the Examiner.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5, 18-30, 43 and 73 are rejected under 35 U.S.C. 102(b) as being anticipated by Gould, USPN 6,003,534.

Regarding claims 1-5, 18-30 and 73, Gould shows an anhydrous ammonia distributor manifold comprising a body (6), an inlet (16) to the body, a plurality of outlets (7) radially disposed and spaced apart around the body, a rotatable impeller (17) having an intermediate portion which includes an “external” rotatable fluid pathway (18) defined at least in part by a spiral supply groove on an external surface of the impeller, the fluid pathway including an entry end (19) in fluid communication with the inlet of the body and an exit end (20) in fluid communication with the plurality of outlets from the body, and a distribution void (30) in fluid communication between the exit end of the fluid pathway and the plurality of outlets from the body, so that anhydrous ammonia passes through and out the exit end of the fluid pathway and is distributed to the plurality of outlets through the distribution void (see Figures 3A and 3B). Gould further shows the apparatus including a bearing system (25, 26, 27) having an axle (25) with a bearing surface at a distal end extending inwardly of the body, the bearing system associated with the impeller to facilitate rotation of the impeller in the body in response to fluid

pressure on the impeller (see Figures 3A and 3B). Further, Gould teaches the apparatus to include a plurality of fluid conduits (8), each one of said conduits extending from each outlet of the body via connectors (not shown), each of said fluid conduits terminating in an injection knife (10), and the anhydrous ammonia distributor being for use with a system which comprises an automotive vehicle (tractor-not shown) and a tank of anhydrous ammonia (2) (see Figures 1 and 4; and column 3, lines 32-50), which feeds the anhydrous ammonia to the distributor manifold via a conduit (12) connected to the inlet of the body via a connector (not-shown) (see Figure 3B). Still further, Gould teaches a sensor (29) operatively positioned to derive a speed of rotation of the impeller (see Figure 3B; and column 4, lines 13-15 and lines 35-37). Gould also teaches that the impeller may alternatively be driven by an electric motor (see column 2, lines 25-26).

Regarding claim 43, Gould shows an anhydrous ammonia distributor comprising a housing (6) comprising an inlet (16), a plurality of outlets (7), a chamber between the inlet and the outlets, a rotatable impeller (17) positioned in the chamber, the impeller defining a rotatable external fluid pathway (18) in communication with the inlet, the impeller (as well as the inside of housing wall (13)) also defining a space (30) in fluid communication with the outlets, so that rotation of the impeller rotates the fluid pathway and distributes the anhydrous ammonia from the inlet to the space in fluid communication with the outlets.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 15, 17, 46-49, 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gould.

Regarding claim 15, Gould shows all of the claimed limitations as recited in claim 5, however Gould is silent regarding forming a specific angle of the wall of the spiral supply groove in such a way that one-half of the pressure of the anhydrous ammonia pushes longitudinally on the impeller and one-half of the pressure of the anhydrous ammonia pushes sideways on the impeller. However, regarding the “angle of the wall” recitation, Gould does expressly teach that the rotational speed of the impeller is governed in part by the “pitch” (i.e. the angle of the wall) of the spiral groove (see column 2, lines 19-25). Essentially, the angle of the wall of the spiral supply groove is a result-effective variable.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the angle of the wall of the spiral supply groove to produce an equal pressure distribution laterally vs. longitudinally on the impeller, in order to optimize the rotational speed of the impeller and the velocity of the anhydrous ammonia being supplied through the spiral groove, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 17, 46-49, 75 and 76, Gould shows all of the claimed limitations as recited in claims 1, 43 and 73, respectively, however Gould does not expressly teach providing a plurality of fluid pathways/spiral grooves, such as three spiral grooves equally spaced 120 degrees from the next, each groove having an entrance in fluid communication with the

body/housing inlet and an exit/outlet in fluid communication with the distribution void/space (hence, being in fluid communication with the plurality of outlets from the body/housing).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide more than one spiral groove having fluid communication between the body inlet and the distribution void, the plurality of the spiral grooves being equally distributed around the circumference of the impeller for proper weight distribution (for instance three grooves provided 120 degrees apart), in order to ensure a more evenly distributed delivery of anhydrous ammonia to the distribution void, and since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (CA 7 1977).

Allowable Subject Matter

10. Claims 54-60, 65-71, 77 and 79 are allowed.

11. Claims 6, 12-14, 44, 45, 74 and 78 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments filed with respect to the "Gould" reference (U.S. Patent No. 6,003,534) as not defining an "external rotatable fluid pathway" with regard to claim 1 or an

“external substance path” with regard to claim 43, as set forth in section “G” on pages 18-19 of the response filed April 11, 2005, have been fully considered but they are not persuasive.

Applicant asserts “Gould discloses a disk-shaped rotor that has a single internal fluid passage 18 machined or formed from its center interior to its outside edge. Applicant’s assertion that the passage is “formed from its center interior to its outside edge” is unfounded. Nowhere in the reference to Gould is there disclosure stating this assertion. In fact, Gould expressly states that the passage “may be carved into the surface of the solid block” (see column 2, lines 38-39). Further, the recitation “external rotatable fluid pathway” does not clearly define what Applicant seems to believe it defines. There is nothing in the claims reciting a relative term, which the fluid pathway is “external” to. As reasonably interpreted by the Examiner, the fluid pathway, which is expressly taught to be “carved into the surface” of the impeller, is an “external rotatable fluid pathway”.

Applicant’s further arguments (see last 6 lines of page 18 through first 8 lines of page 19) that the device shown by Gould only distributes to the plurality of exit ports (7) one at a time, whereas “Applicant’s claim 1 describes the rotatable pathway being in fluid communication with the plurality of outlets of the body”, is not clear. As Applicant points out, claim 1 requires a device having “fluid communication with the plurality of outlets of the body” through the “distribution void”. Clearly, Gould shows/teaches that a “distribution void” (reference number 30, as shown in Figure 3B) entirely surrounds the impeller (17) between the exit end (20) of the fluid pathway and the plurality of outlets (7) from the body, and therefore distribution is made to all of the outlets through the distribution void (30). Although Gould does state that the impeller exposes the delivery port (20) “to each outlet port (7) for a substantially equal period of time”, as

asserted by Applicant, Gould also expressly teaches, "The rotatable distributor may be arranged to have a slightly smaller diameter than the inner dimension of the housing to create a delivery chamber..." (i.e. a distribution void) "... between the delivery port of the rotatable distributor passage and the outlet ports in the wall of the housing. This chamber further equalizes the delivery to each outlet port." (See column 2, lines 51-56). Therefore it is clear that the rotatable fluid pathway of Gould is in fluid communication with the plurality of outlets of the body via the distribution void, and therefore the device shown by Gould anticipates the claimed recitations.

13. Applicant's arguments, see section "H" on pages 20-21, filed April 11, 2005, with respect to the rejection of claims 12 and 13 under 35 U.S.C. 103(a), have been fully considered and are persuasive. The rejection of claims 12 and 13 has been withdrawn.

NOTE: The rejections of claims 15 and 17 are NOT withdrawn and remain outstanding. Applicant did not fully address or properly traverse the rejections of claims 15 and 17 under 35 U.S.C. 103(a), as set forth in the Office Action mailed January 6, 2005.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darren W Gorman whose telephone number is 571-272-4901. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on 571-272-4901. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Darren W Gorman
Examiner
Art Unit 3752

DWG 5/4/05
DWG
May 4, 2005


STEVEN J. GANEY
PRIMARY EXAMINER
5/4/05